



--	--	--	--	--	--	--	--	--	--

HOMI BHABHA BALVAIDNYANIK MOCK TEST PAPER

(ACADEMIC SESSION 2020-2021)

CLASS-IX

MOCK TEST - 4

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This paper contains 100 Questions.
2. The duration of the paper is 90 min.
3. If you do not know the answer to any question, do not waste time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and attempt them.
4. Since the time allotted for this question paper is very limited you should make the best use of it by not spending too much time on any one question.
5. Rough work can be done anywhere in the booklet but not on the OMR sheet/loose paper.
6. Please return OMR sheet to the invigilator after the test.
7. Each correct answer carry [One Mark].
8. There is No negative marking.

ALLEN Mumbai City Office :

KK Solitaire, Plot No. 278, Opp. Vanita Vikas School, Near Railway Station, Ghatkopar East

Mumbai : 400077 | ☎ +022-62423699

E-mail : mumbai@allen.ac.in | 🌐 www.allen.ac.in

Corporate : "SANKALP", CP-6, Indra Vihar, Kota (Rajasthan)-324005

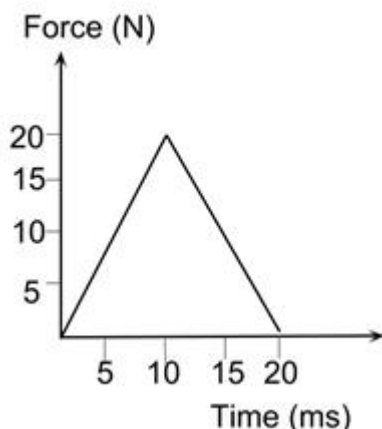
☎ +91-744-2757575 | ✉ info@allen.ac.in

Your Hard Work Leads to Strong Foundation

PHYSICS

- The unit of work is joule. The other physical quantity which has same unit is
 - power
 - velocity
 - energy
 - force
- How much time will be required to perform 520 J of work at the rate of 20 W?
 - 24s
 - 16s
 - 20 s
 - 26 s
- The Mass of an object X is M_1 and that of an object Y is M_2 . Keeping their kinetic energy constant if the velocity of an object Y is doubled the velocity of an object X, what will be the relation of their masses?
 - $M_1 = 2M_2$
 - $2M_1 = M_2$
 - $4M_1 = M_2$
 - $M_1 = 4M_2$
- Determine the relation between following quantities:
 Ek = Kinetic energy, P = Momentum,
 m = Mass, v = Velocity
 - $Ek = \frac{1}{2} Pv^2$
 - $Ek = \frac{1}{2} mPv$
 - $Ek = \frac{1}{2} Pv$
 - $Ek = 2Pv$
- A students carries a bag weighing 5 kg from the ground floor to his class on the first floor that is 2 m high. The work done by the boy is
 - 1 J
 - 10 J
 - 100 J
 - 1000 J
- If the velocity of a body is doubled its kinetic energy
 - gets doubled
 - becomes half
 - does not change
 - becomes 4 times
- Which of these is true about conservative force?
 - Work done between two points is independent of the path
 - Work done in a closed loop is zero
 - If the work done by the conservative is positive, its potential energy increases
 - None of these
 - only (a) is correct
 - (a), (b) and (c) are correct
 - (a) and (b) are correct
 - (d) is correct
- The momentum of a bullet of mass 20 g fired from a gun is 10 kg m/s. The kinetic energy of this bullet in kJ will be:
 - 25
 - 2.5
 - 0.25
 - 5
- When matter gets warmer, the atoms and molecules in that matter _____.
 - Stand still
 - Move faster
 - Move slower
 - Can't say
- Which one of the following is not the unit of energy?
 - Kilowatt
 - Kilowatt hour
 - Joule
 - Newton meter
- Why is block of ice kept covered in saw dust?
 - To hide it
 - To soak the water from ice
 - To prevent heat from air
 - Our hand should not feel cold
- How much heat is required to raise temperature of 1000g of water from 50°C to 95°C?
 (Specific heat of water: 4200 J/kg °C)
 - 189 KJ
 - 18.9 KJ
 - 189000 KJ
 - 1.89 KJ
- A body P has a mass 2m and velocity 5v. Another body Q has mass 8m and velocity 10v. The ratio of K.E of P and Q is -
 - 1 : 2
 - 1 : 4
 - 1 : 6
 - 1 : 16
- A body at rest can have -
 - Kinetic Energy
 - Potential Energy
 - Momentum
 - None of these
- A golf player hits a 0.042 kg golf ball that is initially at rest, changing its momentum by 4.2 kg m/s. What is the final speed of the golf ball?
 - 40 m/s
 - 60 m/s
 - 80 m/s
 - 100 m/s

16. How does the ball's velocity change between 0s to 20 s?



- (1) Velocity increases and then decreases
 (2) Velocity does not change
 (3) Velocity decreases
 (4) Velocity increases
17. The unit of Impulse is -
 (1) Kgm/s (2) Kgm/s^2
 (3) Kg/s (4) Kg/s^2
18. Find the temperature at which the temperature scales in Celsius and Kelvin will give same reading.
 (1) -40°C (2) Never
 (3) 220°C (4) 273°F
19. In the formation sea breeze and land breeze , which of the following methods to heat transfer are observed
 (1) Conduction and Radiation
 (2) Conduction and Convection
 (3) Convection
 (4) Convection and Radiation
20. 1 degree on Celsius scale is _____ degree on Fahrenheit Scale.
 (1) $5/9$ (2) $9/5$
 (3) 180 (4) 32
21. Without greenhouse effect, the average temperature of earth's surface would have been:
 (1) -18°C (2) 33°C
 (3) 0°C (4) 15°C
22. Find the specific heat capacity of ice if 12 kg of ice absorbs 504 kJ of heat to raise its temperature from -20°C to 0°C .
 (1) $2300 \text{ J/kg } ^\circ\text{C}$ (2) $2200 \text{ J/kg } ^\circ\text{C}$
 (3) $2100 \text{ J/kg } ^\circ\text{C}$ (4) $2000 \text{ J/kg } ^\circ\text{C}$

23. The Lower and Upper fixed points of Faulty thermometer are -2°C and 102°C , respectively. If the thermometer reads 38°C on this thermometer, find the correct temperature on the Celsius scale.
 (1) 20°C (2) 38.2°C
 (3) 40°C (4) 38.4°C
24. The form of energy possessed by a flying bird is:
 (1) Kinetic energy
 (2) Potential energy
 (3) Both kinetic and potential energy
 (4) Can't say
25. Which of the following properties are suitable for making cooking utensils?
 (1) High specific heat and high conductivity
 (2) Low specific heat and low conductivity
 (3) High specific heat and low conductivity
 (4) Low specific heat and high conductivity
26. Which among the following is hottest substance?
 (1) Water at 100°C
 (2) Steam at 100°C
 (3) Mercury at 100°C
 (4) All of the above
27. Heat transfer rate is more in _____.
 (1) Glass (2) Wood
 (3) Plastic (4) Copper
28. A piece of ice at 0°C is dropped into water at 32°F . Which of the following statements is correct?
 (1) Ice melts (2) Water freezes
 (3) Both (1) and (2) (4) None of these
29. Thermal energy is measured in
 (1) Joules (2) N
 (3) Celsius (4) J/kg
30. The conversion of a vapor directly into solid is best described as -
 (1) Condensation (2) Deposition
 (3) Freezing (4) vaporization

CHEMISTRY

31. Name an element which is common to all acids?
 (1) Hydrogen (2) Chlorine
 (3) Oxygen (4) Sulphur
32. The acidic radical in hydrochloric acid is -
 (1) H^+ (2) Cl^-
 (3) H_3O^+ (4) None
33. According to Arrhenius concept bases are the compounds which on dissolving in water produce -
 (1) OH^- ions (2) H^+ ions
 (3) Cl^- ions (4) both (2) & (3)
34. Dissociation of sulphuric acid is given as -
 i. $H_2SO_4 \rightarrow H^+ + X$
 ii. $X \rightarrow H^+ + Y$
 Identify X & Y in the above equations.
 (1) H^+ , SO_4^{2-} (2) SO_4^{2-} , H^+
 (3) HSO_4^- , SO_4^{2-} (4) SO_4^{2-} , HSO_4^-
35. Dissolution of KNO_3 in water is a/an-
 (1) endothermic process
 (2) exothermic process
 (3) heat remains constant
 (4) none of these
36. In the reaction, $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$, Identify the reducing agent-
 (1) Fe_2O_3 (2) CO
 (3) Fe (4) None
37. Fatty foods become rancid due to the process of
 (1) oxidation (2) corrosion
 (3) reduction (4) hydrogenation
38. A redox reaction is one in which-
 (1) both the substances are reduced
 (2) both the substances are oxidized
 (3) an acid is neutralized by the base
 (4) one substance is oxidized while the other is reduced
39. Corrosion of metals involves -
 (1) Physical reactions
 (2) Chemical reactions
 (3) Both
 (4) None
40. Which of the following gases can be used for storage of fresh sample of an oil for a long time?
 (1) Carbon dioxide or oxygen
 (2) Nitrogen or helium
 (3) Helium or oxygen
 (4) Nitrogen or oxygen
41. The following reaction is an example of-
 $Zn + H_2SO_4 (dil) \rightarrow ZnSO_4 + H_2$
 (1) decomposition reaction
 (2) single displacement reaction
 (3) combination reaction
 (4) synthesis reaction
42. NH_3 is a-
 (1) salt (2) base
 (3) acid (4) none
43. In the reaction, $2Ca(s) + O_2(g) \rightarrow 2CaO(s)$, calcium is-
 (1) reduced (2) oxidised
 (3) synthesised (4) none
44. When ionic compounds are dissolved in water, they produce-
 (1) ions
 (2) electrons
 (3) simple molecules
 (4) both (2) & (3)
45. Silver article turns black when kept in the open for a few days due to formation of
 (1) H_2S (2) AgS
 (3) $AgSO_4$ (4) Ag_2S
46. Which of the following statements about the given reaction are correct?
 $3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$
 (i) Iron metal is getting oxidised
 (ii) Water is getting reduced
 (iii) Water is acting as reducing agent
 (iv) Water is acting as oxidising agent
 (1) (i), (ii) and (iii) (2) (in) and (iv)
 (3) (i), (ii) and (iv) (4) (ii) and (iv)
47. $CaCO_3(s) + \text{heat} \rightarrow CaO(s) + CO_2(g)$ is an-
 (1) exothermic reaction
 (2) endothermic reaction
 (3) combination reaction
 (4) None of these

48. A substance added to food containing fats and oils to prevent them from rancidity is called:
- (1) Oxidant (2) Rancid
(3) Coolant (4) Antioxidant
49. $2\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + 2\text{H}_2\text{O}$;
is an example of-
- (i) Displacement reaction
(ii) Double displacement reaction
(iii) Combination reaction
(iv) Neutralisation reaction
- (1) (ii) and (iv) (2) (ii) and (iii)
(3) (iii) and (iv) (4) (i) and (iv)
50. The rate of a chemical reaction is not affected by which of the following?
- (1) concentration (2) temperature
(3) particle size (4) none of the above
51. Oxidation is a process which involves-
- (1) addition of oxygen
(2) addition of hydrogen
(3) removal of oxygen
(4) both (1) & (2)
52. The chemical formula of caustic soda is-
- (1) NaOH (2) $\text{Ca}(\text{OH})_2$
(3) NH_4OH (4) KOH
53. Increasing the temperature of the reaction-
- (1) increases the rate of the reaction
(2) decreases the rate of the reaction
(3) may increase or decrease the rate of the reaction
(4) none
54. The reaction in which two compounds exchange their ions to form two new compounds is called-
- (1) displacement reaction
(2) combination reaction
(3) double displacement reaction
(4) redox reaction
55. Which of the following pair is the example of acids?
- (1) HCl, KCl
(2) CH_3COOH , NaOH
(3) HNO_3 , KNO_3
(4) HNO_3 , HCl
56. Which one is true regarding the bases ?
- (1) All bases are alkali
(2) All alkalis are base
(3) Bases are not alkalis
(4) None of the above
57. An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are -
- (1) X = Fe, Y = Fe_2O_3
(2) X = Ag, Y = Ag_2S
(3) X = Cu, Y = CuO
(4) X = Al, Y = Al_2O_3
58. What happens when sodium sulphate solution is mixed with the solution of barium chloride?
- (1) Barium sulphate is formed
(2) Sodium sulphate is formed
(3) Sulphur dioxide gas is formed
(4) No reaction takes place
59. Identify the reducing agent in the following reaction -
- $$\text{H}_2\text{S} + \text{I}_2 \rightarrow 2\text{HI} + \text{S}$$
- (1) I_2 (2) H_2S
(3) HI (4) S
60. Lime water is -
- (1) CaO (2) $\text{Ca}(\text{OH})_2$
(3) CaCO_3 (4) CaCl_2

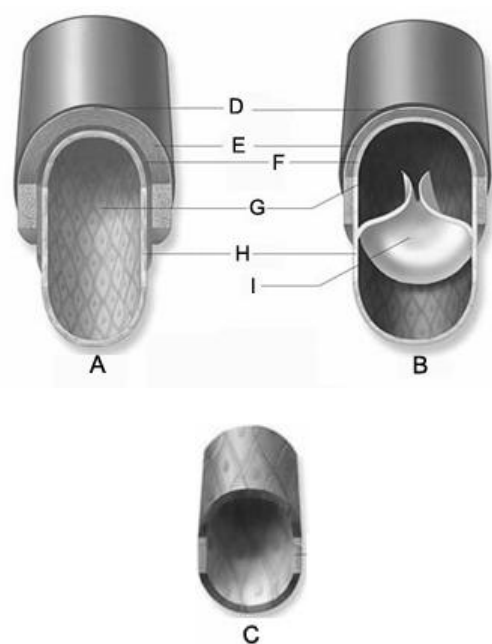
BIOLOGY

61. The Malpighian corpuscles functions as a -
 - (1) Filter
 - (2) Suction pump
 - (3) Sponge
 - (4) All of the above
62. The reabsorption of glucose in a nephron occurs in -
 - (1) Loop of Henle
 - (2) Proximal convoluted tubule
 - (3) Distal convoluted tubule
 - (4) Collecting duct
63. Urea is produced in the body of man in -
 - (1) Kidney
 - (2) Urinary bladder
 - (3) Liver
 - (4) Blood
64. Kidneys do not help in -
 - (1) Osmoregulation
 - (2) Maintaining body temperature
 - (3) Maintaining composition of blood plasma
 - (4) Regulation of blood pH
65. Blood enters glomerulus through -
 - (1) Afferent arteriole
 - (2) Efferent arteriole
 - (3) Convoluted tubules
 - (4) Blood capillaries
66. The gaseous wastes of respiration and photosynthesis in plants are removed through -
 - (1) Stomata of leaves
 - (2) Lenticels of stem
 - (3) Both (1) and (2)
 - (4) None of these
67. What is the mechanism used by the kidneys to remove waste products from the body ?
 - (1) Nephrons convert non nitrogenous waste to uric acid and pass it out as urine
 - (2) Nephrons actively transport uric acid and other non-nitrogenous waste into the proximal and distal convoluted tubules, from where it is collected to form urine
 - (3) The blood is filtrate to retain cell and large plasma proteins within the blood. The remaining filtrate passes through the proximal and distal convoluted tubules, where needed substances are reabsorbed
 - (4) Nephrons filter out the non-nitrogenous waste which is passed through the proximal and distal convoluted tubules and collected by the collecting duct as urine
68. Each kidney has approximately ____ nephrons.
 - (1) 10 thousand nephrons
 - (2) 10 lakh nephrons
 - (3) 100 million nephrons
 - (4) 100 nephrons
69. Mitral valve in mammals guards the opening between -
 - (1) Left atrium and left ventricle
 - (2) Right atrium and right ventricle
 - (3) Right atrium and left ventricle
 - (4) Left atrium and right ventricle
70. Which one of the following types of cells lack nucleus in humans?
 - (1) Erythrocytes
 - (2) Neutrophils
 - (3) Eosinophils
 - (4) Monocytes
71. Most of the waste substances of plants are stored in ____ of leaf-cells and in flowers, fruits and the bark of the stem.
 - (1) cell wall
 - (2) endoplasmic reticulum
 - (3) vacuoles
 - (4) none of these
72. Pacemaker is situated in heart -
 - (1) On the interatrial septum
 - (2) In the wall of right atrium
 - (3) On the interventricular septum
 - (4) In the wall of left atrium
73. Mammals are said to have double circulation. It means -
 - (1) The blood circulates twice through the heart during completion of one full circuit.
 - (2) There are two types of blood vessels attached to every organ
 - (3) There are two systems, one from the heart to the lungs and other back to rest of the body
 - (4) Blood vessels are paired
74. Which factor is most important in regulating transpiration?
 - (1) Temperature
 - (2) Humidity
 - (3) Light
 - (4) Wind

75. Transpiration and root pressure causes water to rise in plants by -
 (1) Pulling and pushing it respectively
 (2) Pushing it upwards
 (3) Pushing and pulling it respectively
 (4) Pulling it upwards
76. Which of the following is not a function of transpiration?
 (1) Cooling of leaves
 (2) Uptake of minerals
 (3) Excretion of minerals
 (4) Uptake of water
77. Which is not a function of Gibberellin ?
 (1) Stem elongation
 (2) Growth in fruits
 (3) Decrease in number of fruits
 (4) Breaking dormancy of seeds and buds
78. Opening and closing of flowers is categorised as
 (1) Phototropic movement
 (2) Photonasty
 (3) Thigmotropic movement
 (4) Thigmonastic movement
79. The growth of pollen tube towards ovule is an example of-
 (1) Hydrotropism
 (2) Chemotropism
 (3) Geotropism
 (4) Chemonasty
80. Pick the odd one out.
 (1) Giberellin
 (2) Auxin
 (3) Resin
 (4) Cytokinin
81. In seismonastic movement, there is _____ growth involved.
 (1) no (2) more
 (3) less (4) Either 2 or 3
82. Which of the following is ammonotelic?
 (1) Rohu (2) Human
 (3) Crow (4) Earthworm

83. Hands itch on cutting 'arbi' leaves as the leaves the skin. Complete the sentence.
 (1) have solid raphides that scratch
 (2) contain acidic chemicals that corrode
 (3) useful materials like calcium oxalate that is harmful to
 (4) have bristle-like extensions that scratch

Use the following image to answer questions Q.84 to Q.86



84. In which of the above does gaseous exchange occur?
 (1) Only A (2) Only B
 (3) Only C (4) Both B and C
85. The structure labeled I is ___(i)___ and its function is to ___(ii)___.

	(i)	(ii)
(1)	Valve	Prevent back flow of blood in arteries
(2)	Valve	Maintain unidirectional flow of blood
(3)	Muscle	Prevent collapse of vessel walls under low pressure
(4)	Septum	Prevent back flow of blood in veins

86. How many of the following are true?
- i) B usually carries deoxygenated blood.
 - ii) A has wider lumen than B.
 - iii) C lacks muscular wall.
 - iv) Pressure is highest in C due to small diameter.
- (1) One (2) Two
(3) Three (4) Four
87. Find the correct match.
- (1) leukocytes-neutrophils
 - (2) platelets-monocytes
 - (3) erythrocytes-basophils
 - (4) plasma-monocytes
88. The phenomenon by which WBCs escape into tissue fluid from blood is –
- (1) homeostasis (2) diapedesis
 - (3) peristalsis (4) diastole
89. Choose the correct functions of lymph.
- (1) it supplies nutrition
 - (2) it supplies oxygen
 - (3) it drains away excess tissue fluids
 - (4) all of these
90. Which of the following is incorrect?
- (1) Plasma devoid of clotting factors is serum.
 - (2) Atrial systole precedes ventricular systole.
 - (3) Fatty acids are absorbed into lymph.
 - (4) Diastolic blood pressure is 120mm Hg.

GENERAL KNOWLEDGE

91. What is the name of single-window nodal agency which will be formed by ISRO to regulate private players in space?
 (1) NationSpace (2) IN-SPACe
 (3) PvtSpace (4) Spacepro
92. 'BeiDou' is the navigation satellite system of which country?
 (1) Japan (2) South Korea
 (3) Russia (4) China
93. Which country has conducted the test flight of LGM-30G Minuteman III missile recently?
 (1) Iran (2) China
 (3) United States (4) India
94. Solar orbiter mission is launched by which space agency & when?
 (1) NASA, Jan 2020
 (2) JAXA in collaboration with NASA, Feb 2020
 (3) ESA in collaboration with NASA, Feb 2020
 (4) ESA in collaboration with Roscomos, Feb 2020
95. Ekspress-80/Ekspress-103, a satellite, is launched by which country & when
 (1) India, March 2020
 (2) United States, June 2020
 (3) United Kingdom, May 2020
 (4) Russia, July 2020
96. Name the Institute which is going to organize India's 1st Global Hyperloop pod competition
 (1) IIT, Hyderabad (2) IIT, Madras
 (3) IIT, Bombay (4) None of these
97. Name the 1st company in India which to begin supply of BS-VI fuel across country
 (1) GAIL (2) BPCL
 (3) IOC (4) ONGC
98. The researchers at Brown University had recently developed a method to convert CO₂ into C-2 plus compounds more efficiently using
 (1) Titanium catalysts (2) graphite
 (3) Zinc catalyst (4) copper catalyst
99. Which among the following is the world's oldest known land animal as per research published in the journal Historical Biology?
 (1) Kampecaris obanensis
 (2) Aldabrachelys gigantean
 (3) Somniosus microcephalus
 (4) Sebastes aleutianus
100. India's first mobile RT-PCR COVID lab named 'Mobile Infection Testing and Reporting lab (MITR)' was developed by which institute?
 (1) Tata Institute of Fundamental Research (TIFR)
 (2) Council of Scientific and Industrial Research (CSIR)
 (3) Indian Institute of Science (IISc) Bengaluru
 (4) Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)